

Cut Gasses

fired exhaust gasses to reduce the quantity of CO, NO and SO contained in said fired exhaust.

2. (Amended) The apparatus of Claim 1 further comprising an injector for blowing air and waste material into said first combustion chamber.

3. (Amended) The apparatus of Claim 2 wherein said injector blows said air and waste material into said first combustion chamber along a trajectory that suspends said waste material for a time sufficient to enhance incineration of said waste material.

~~22~~ (Amended) A waste disposal system comprising:

means for reducing said waste material and for feeding said reduced waste material to said first combustion means;

a first combustion means for incinerating said reduced waste material in an oxygen rich atmosphere to produce an exhaust containing gasses and particulate matter;

~~22~~ a second combustion means for firing said exhaust containing gasses and particulate matter in an oxygen starved atmosphere;

means for removing particles from said fired exhaust;

first means for treating said fired exhaust to remove oxides of nitrogen;

second means for treating said fired exhaust to accelerate oxidizing reactions in said fired exhaust; and

liquid filter means for capturing said particulate matter contained in said fired exhaust and for chemically treating said fired exhaust gasses to reduce CO, NO, HCL and SO₂ contained in said fired exhaust

REMARKS

This responds to the Office Action mailed September 6, 1991, finally rejecting Claims 1-14 and 22-25. Claims 15-21 and 26 were subject to a restriction requirement which was properly made withdrawing those claims from consideration. In the Office Action, the Examiner persisted in his rejection arguing that the claims were obvious under 35 U.S.C. §103 on the basis of Hadley, U.S. Patent No. 4,949,652 in view of Kent, U.S. Patent No. 4,922,841.

The independent claims 1 and 22 have been amended to more particularly emphasize the novel feature of Applicant's invention

in regard to the exhaust that is fired in the second combustion chamber. Those claims now state that the exhaust contains both "gasses and particulate matter." Claims 2 and 3 have been amended to more particularly emphasize the oxygen enriching feature of the present invention by specifically reciting that air is blown into the first combustion chamber along with the waste material. Applicant respectfully requests reconsideration of the rejection in view of the amendments to the claims and the argument that follows.

The Examiner's rejection is wrong in three principal respects. First, the Examiner has not specifically addressed the claims or claim language. Second, the art relied on by the Examiner does not teach or suggest that the first or primary incineration conducted in the first combustion chamber or first combustion means takes place in an oxygen rich atmosphere. Third, the art relied on by the Examiner does not teach or suggest the claimed liquid filter or liquid filter means.

The primary reference relied on by the Examiner is the Hadley '652 Patent. Hadley teaches a conventional incineration system that uses the prior art approach of a first incineration using an oxygen starved atmosphere. This is shown at Column 1, beginning at lines 57 where Hadley discloses use of a "Simmons Model AF-4B Infectious Waste Incinerator." This is a conventional incinerator that burns waste material in an oxygen starved atmosphere. The conventional nature of Hadley's device is further supported by his reference to use of a pneumatically operated ram feeder. Hadley's ram feeder prevents the introduction of additional air and oxygen into the system.

In contrast, Applicant's claimed invention requires in Claim 1 "a first combustion chamber for incinerating waste material in an oxygen rich atmosphere" and in Claim 22 "a first combustion means for incinerating said reduced waste material in an oxygen rich atmosphere." This claim language is supported by Applicants' specification that teaches using air to inject the waste material to be incinerated. Thus, additional air and oxygen is added to the first combustion chamber or means providing for an oxygen rich incineration. The Applicants' claimed feature of injecting air into the system is positively recited in Claims 2 and 3. Nowhere in the prior art relied on

by the Examiner is any device taught or suggested that shows blowing air and waste material into the first combustion chamber or means.

The secondary reference relied upon by the Examiner, the Kent '841 Patent, is also essentially a conventional incinerator of the prior art. Kent does not teach or suggest using air injection in the first combustion chamber or means. As is shown in Kent's Figure 1, the system actually operates under a gravity flow to avoid introduction of additional air. Reliance on Kent is further inappropriate for the reason that it does not suggest or teach anything about the fuel to air ratio or that the system is anything other than a conventional incinerator.

Applicant further submits that the liquid filter of Claim 1 and the liquid filter means of Claim 22 require "capturing said particulate matter contained in said fired exhaust and for chemically treating said fired exhaust gasses to reduce the quantity of CO, NO, and SO contained in said fired exhaust." This limitation is not taught or suggested in any of the references. While Hadley '652 does show the use of liquid sprays to neutralize the exhaust, his device does not serve the added function of capturing "said particulate matter". The nature of the exhaust in Applicants' invention has been more particularly described by the Amendment requiring that the exhaust contains both "gasses and particulate matter". Nothing in the prior art teaches or suggests Applicants' claimed liquid filter and liquid filter means.

A claim should not be rejected if there is a single limitation not taught or made obvious by the prior art. Here, there are two limitations in each of the rejected claims that is nowhere disclosed or even suggested by the prior art. The Examiner has failed to explain how, based on the prior art, it would have been obvious to combine these claimed features that are not even shown to have existed prior to Applicants' invention.

The Examiner suggests that employing a first combustion chamber (Claim 1) or first combustion means (Claim 22) with an oxidizing atmosphere and a reducing atmosphere in the second combustion chamber (Claim 1) or the second combustion means (Claim 22), would be obvious to one skilled in the art who had

chosen to operate his system along the lines as taught in the prior art. The Examiner seems to suggest that varying the amount of oxygen available for combustion provides a smooth (and possibly unimportant) continuum of advantages. This is clearly not the case.

The oxygen starved or reducing atmosphere mentioned in the Hadley '652 Patent and the Kent '841 Patent prevents the burning of waste material in the primary chamber with the preferred purpose of creating combustible gasses and vapors (smoke) that are subsequently burned in the secondary chamber of the system where enough oxygen is present to burn the combustible gasses and vapors. An example of this is a smoldering pile of leaves -- there is smoke, but not flame unless one lifts or stirs the leaves with a rake to allow oxygen to reach uncharred leaves. On the contrary, Applicants teach a first combustion chamber or means having an oxygen rich atmosphere. Applicants' invention allows for the waste material to burst into flame in the first combustion chamber and first combustion means and thus, allows a much more rapid incineration. The approach of Applicants' invention and the combustion sequence claimed is completely different from the Hadley and Kent patents. In essence, Hadley and Kent say it is a bad idea to stir the leaves; Applicants' say it is a good idea to stir the leaves. Clearly, Applicants' invention cannot be obvious in view of Hadley and Kent.

The Amendment to the Claims and the more detailed explanation of the prior art relied on by the Examiner is hoped to alleviate the concerns evidenced in the rejection. The claims now having been amended to overcome the Examiner's rejection, an early Notice of Allowance is earnestly solicited. In the event the Examiner has any questions, it is requested that he contact the attorney listed below by telephone.

The Commissioner is hereby authorized to charge any fees or credit any overpayments to Deposit Account No. 02-0384 of Baker & Botts.

Respectfully submitted,
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